



Opening Remarks, Welcome, and Introduction to the CHP Challenge Initiative and Goal

**Peter Carroll
U.S. Combined Heat and Power
Association**

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AN ENERGY CROSSROADS

Today we have unprecedented opportunities to shape our energy future

- ▶ Restructuring**
- ▶ Aging Energy Infrastructure**
- ▶ Technologies**
- ▶ Approaching the Millennium**



RESTRUCTURING

1978

PURPA -

Begins the restructuring process by creating a new class of non-utility generators

1992

EPACT -

Opened transmission system to wholesale generators

1999

State Legislation -

20 states have enacted restructuring legislation -many others are considering

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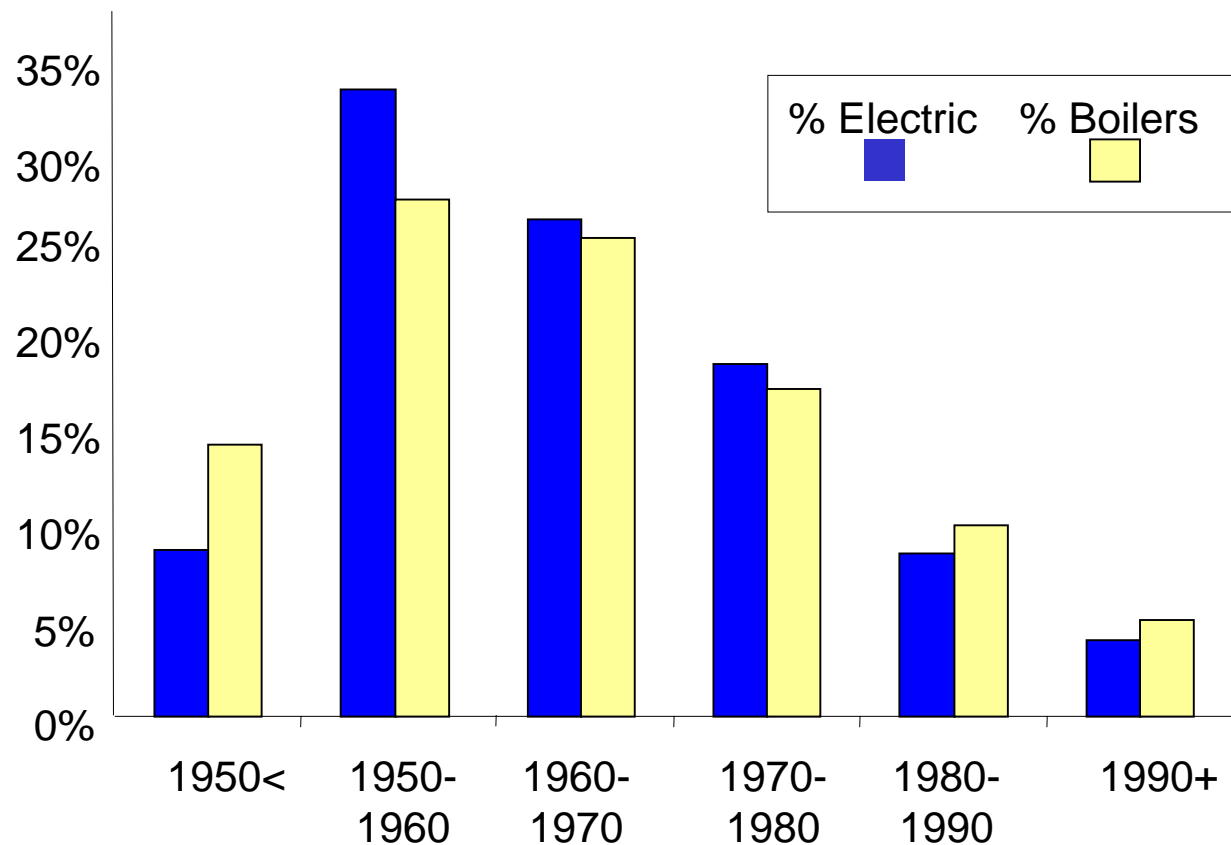
Restructuring Complete -

An entirely new landscape for energy generation, delivery and use



AGING ENERGY INFRASTRUCTURE

U.S. Electric Plant and Boiler Vintage



Sources: Energy Information Administration, Gas Research Institute



TECHNOLOGIES

**COMBUSTION
TURBINES**

**MICRO-
TURBINES**

**RECIP
ENGINES**

BOILERS

FUEL CELLS

**STEAM
TURBINES**

BUILDINGS	INDUSTRY	DISTRICT ENERGY	ENERGY SERVICES	PUBLIC FACILITIES
Offices	Pulp & Paper	Industrial Parks	Electric Utilities	General Services Administration
Commercial	Chemicals	Hospital Complexes	Gas Utilities	Department of Defense
Hospitals	Petroleum Refining	Universities	Energy Services Companies	States
Universities	Steel	Urban Areas	Public Power	Municipalities
Schools	Agriculture	Communities	Electric Cooperatives	Communities
Lodging	Glass		Independent Power Producers	
Multi-Family Residential	Metal Casting			



APPROACHING THE MILLENNIUM

- ▶ **Revolution in communications technology and information distribution**
- ▶ **Prolonged period of expansion and growth**
- ▶ **Businesses looking to take advantage of opportunities for expansion**
- ▶ **Climate more favorable for risk-taking and innovation**



THE BUSINESS-AS-USUAL PATH

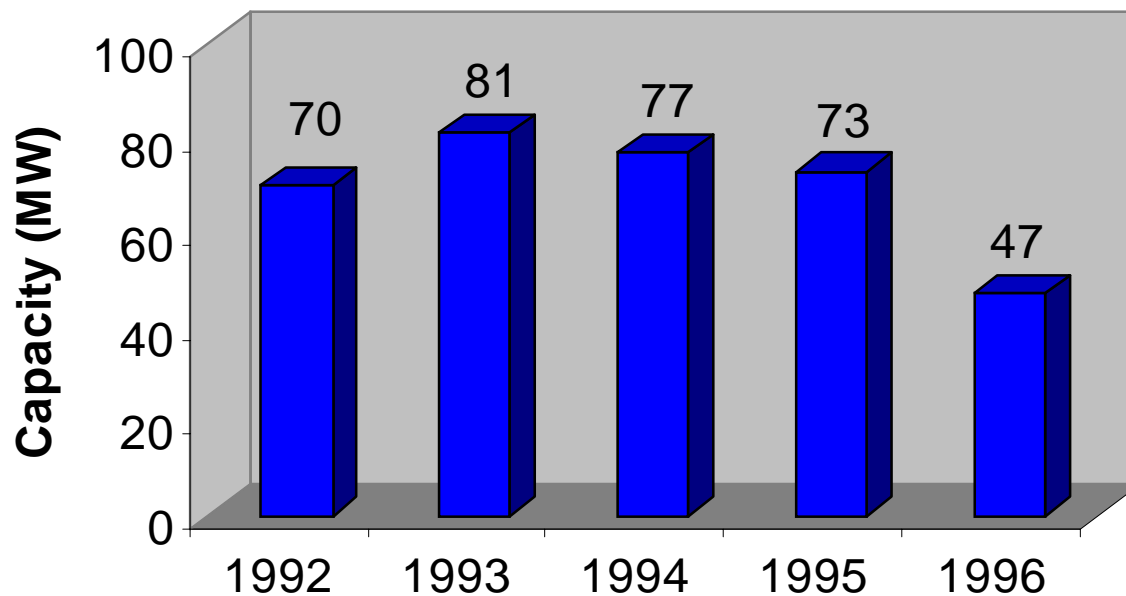
Evidence continues to mount that we are maintaining our emphasis on large central station generation

- ▶ **The California Energy Commission is considering 19 current and future siting cases for projects between 400 and 1,500 MW (total: over 13,000 MW)**
- ▶ **ISO New England is reviewing interconnection applications for 37 projects between 400 and 1,500 MW (total: over 25,000 MW)**
- ▶ **Texas has 1,168 MW of merchant plant capacity on line, 2,600 MW under construction and 4,900 MW proposed**



THE BUSINESS-AS-USUAL PATH

Additions to Cogeneration Electricity Generation Capacity



EIA electricity generation reference case forecasts
CHP capacity will grow only 0.5% from 1997 to 2020



THE OPTIMAL ENERGY FUTURE PATH

Allowing customers to choose their “optimal energy solution” will result in an energy generation landscape characterized by reduced cost, improved efficiency and lower emissions.



MALDEN MILLS

Textile manufacturer installed two 4.3 MW combustion turbines in late 1998

- ▶ **Ceramic liners will reduce NO_x emissions to less than 15 ppm**
- ▶ **Expected system efficiency of 70%**
- ▶ **System will meet company’s growing demand for reliable, economical steam and electricity service**



WORKING TOGETHER TO REACH THE GOAL

